Title	SEASONAL FLUCTUATIONS OF OUR NATIONAL FINANCE
Author(s)	Shiomi, Saburo
Citation	Kyoto University Economic Review (1926), 1(2): 94-127
Issue Date	1926-12
URL	http://hdl.handle.net/2433/125150
Right	
Type	Departmental Bulletin Paper
Textversion	publisher

Kyoto University
Economic Review

MEMOIRS OF
THE DEPARTMENT OF ECONOMICS
IN
THE IMPERIAL UNIVERSITY OF KYOTO

VOLUME I 1926

PUBLISHED BY THE DEPARTMENT
OF ECONOMICS IN
THE IMPERIAL UNIVERSITY OF KYOTO

SEASONAL FLUCTUATIONS OF OUR NATIONAL FINANCE

1. METHOD OF STUDY

I

National finance in a modern state is, as a rule, regulated to assess its condition by a certain unit of time called the financial year, the date of which varies according to the constitutional or administrative conditions of each country. Such method of assessment is rather to be called a matter of formality and to be against the real nature of national finance. For, in fact, the finance of today being a continuation of that of yesterday, and the finance of tomorrow being in the same relation with that of today, we thus see that in national finance, there is a continuity of contents or substance. Viewed from this practical standpoint, the formal assessment of national finance by such measurement as is represented by a financial year is not of much importance.

In our country, the Accountancy Act regulates the financial year as one unit of our national finance, to begin on the 1st of April and to end on the 31st of March of the year following, and this period of twelve months is called one financial year. Thus, to look at the formality of our national finance, finance on the 31st of March of the year 1926 belongs to the financial year of 1926, and that on the 1st of April of the year 1926 is included in the financial year of 1926. So it seems that these two financial years stand independently and unrelated one to the other. Viewed, however, from its contents, the financial conditions on the 1st of April 1926, cannot be determined without reflection on the financial conditions of the 31st of March 1926. Thus, we can arrive at the perception that in our national

finance there exists a continuity of accounts free from the bounds of the financial year.

Now, even admitting that our national finance actually fluctuates independently of the financial year, and does so according to the continual accounts, which are the substance of finance, such fluctuations of our national finance can equally be studied by taking the function of time as the measure. According to Professor Warren M. Persons, the state of our national finance is conditioned by the following influences that we can admit as true: (1) A long time tendency or secular trend; (2) A wave-like or cyclical fluctuation; (3) A seasonal fluctuation within the year; (4) Residual variations due to momentous occurences.

With respect to the secular trend in our national finance, the subject has been fully expounded as a typical example of "the law of the expansion of expenditure"; regarding the cyclical fluctuation as well as the residual variations, the effects of both of these upon our national finances respectively through the Chino-Japanese war, the Russo-Japanese war, and the Great European war. It is unnecessary, therefore, to waste time by expounding these points in this paper. But the subject that I want to deal with here is the seasonal fluctuation of our national finance, for the study of this very important subject has been strangely neglected by our people.

The essential aim of our present study of the seasonal fluctuation of our national finance lies in the solution of the manner in which a seasonal fluctuation occurs on the balance of our national revenue and expenditure. There are two ways of looking at the balance of revenue and expenditure, one of which is to see it on its substantial side, and the other to observe its formal side. As regards the relation of revenue and expenditure, we generally come across questions of surplus, ordinary deficit, and extraordinary deficit, and so forth. Questions of this kind arise from views based upon the substantial side of national finance, and they are, after all, a question of secular trend.

Seasonal fluctuation, as I expound it here, is an aspect of national finance upon its formal side. Again, the investigation of the subject differs from the study of the secular trend, in dealing with national finance in parts as they progress instead of taking it as a whole—a given financial year. Although revenue and expenditure meet in the end of each financial year, our national finance in the course of its year end, shows some gaps, big or small, in the balances of its sectional or seasonal revenue and expenditure, thus revealing a surplus or a deficit on each of such seasonal balance sheets. The object of our present research, is thus to examine the actual state of such seasonal fluctuations as affect the balances of sectional finance on its formal side.

II

Our national finance can, for the purpose of the present study, be dealt with by the following four methods of investigation: as to the subject of investigation, as to the object of examination, as to the period of measurement, and as to the methods of adjustment.

To examine our national finance for the purpose of our present study, it is necessary first of al to determine what part of our national accounts shall be the subject of our inquiry. Hence arises the need of determining the st. ject. Our national finance consists of two main items of revenue and expenditure, each of these being subdivided into ordinary and extraordinary sections. To facilitate investigation, I shall limit the sphere of this subject of investigation to three parts:—revenue, expenditure, and ordinary revenue as represented by receipts from taxes.

Now, to determine the object of investigation, it is necessary to define what a seasonal fluctuation is. Looking at the national finances of the world's powers, the period of their state finance is fixed by a certain unit of time, and is regulated so as to start the financial year either on the 1st of January, the 1st of April, or the 1st of July, extend-

ing the financial period therefrom to a half-year, one year, or sometimes two years onward. Such period is termed a financial year. Our national finance is regulated so as to consist of financial years; each of these commencing on the 1st of April lasts for one complete year onward. Hence we have first of all to take this financial year as the primary object of our investigation. Next, we see need of determining another unit by which to measure the seasonal fluctuation of a financial year and such an unit may be by the day, by the week, by every 10 days, by the month, or by the quarter. In the present case, I have taken one month as the unit, because the actual return of our national accounts received and spent during a financial year is being published in monthly units. In short I shall employ here as an object of investigation a financial year beginning on the 1st of April and ending on the 31st of March of the succeeding year, and taking one month as the unit of measuring the seasonal fluctuation.

Thirdly, we come to determine the period of investigation. The period of such investigation varies according to the objects of research, and also depends upon the amount of information available. In this country, the same as in other civilised states, information concerning national finance is being published in detail, but to a great extent is kept secret. The information available for the present inquiry is therefore, so sparse, that the figures and statistics I can employ in this case are only those which are made public by our government in the Official Gazette. Even those which I am now going to refer to for the measuring of the seasonal fluctuation of our national finance have only been compiled since 1914. Thus, I am obliged to use only the 12 years ranging from 1914 to 1925, as the period of our investigation.

Finally, we have to define means of adjusting discrepancies in the financial figures to make them available for the present investigation. Diverse methods and processes have been studied and published for the calculation of the

seasonal fluctuations of national finances. The simplest is to adopt the seasonal fluctuation of the succeeding year as it stands. But besides this, there are three principal methods known, as follows:—

1. The Method of the Moving Average; i.e., to work out the 'moving average' per month of actual figures, and to convert it to an index number.
2. The Method of working out index numbers per annum out of actual figures, and bringing out of them a monthly moving average.
3. The Method known as the 'Link Relative.'

The first method, that of the moving average of actual figures, has been employed by the present writer in his treatise on "The Seasonal Fluctuation of the Bank of Japan's Convertible Note Issue." The advantage of this method lies in the simplicity of calculation as well as in the use of actual figures; but the method has such unavoidable defects as being easily affected by extraordinary receipts, deficits from taxes, or by the increase and decrease of the financial figures, as may be brought about by divers and diverse causes, in a particular financial year. According to the second method, any abnormal effect on the balance owing to any special events in a particular year can be avoided; but the seasonal fluctuation is thereby disturbed by any abnormal incident of a particular month. Thirdly, the Link Relative method, being the only process free from the demerits mentioned above, is thus often introduced in various treatises and is a useful statistical method, both at home and abroad.

The Link Relative method originated in the distinguished work of Professor Warren M. Persons of Harvard University, who first employed this method in the working out of his treatise entitled "Review of Economic Statistics." In this method he uses relative figures by aid of which such defects as are experienced in the first method of the "moving average" can be completely avoided; furthermore, discrepancies caused in the moving average from the index

number, can be adjusted by placing the time basis on the preceding month. The process consists of two methods. First, the numerical relation of the current monthly finance against those of each preceding month is to be assessed monthly, thus to obtain the median of monthly figures, and to adopt it to represent one of the link relations. In a case like this, one can easily work out instead of the median, either the mode, arithmetic average, or geometric average; but Professor Persons has rejected all these means except the median which he adopted all through. Here lies the special characteristic as well as the importance of the Link Relative method. In the second method of the process, the link relative is made in series. For link relative indicates only the numerical relation existing between the present month and the one preceding it, and no more; thus, in order to find out the consecutive state of fluctuations in series for a long period, it is necessary to convert the link relative to percentages by making its starting point—for instance, with January as 100. Furthermore, to exclude disturbing factors, differences extant in minuses or in pluses as the case may be, are allotted to each month in the range, thus the index numbers being adjusted for discrepancy, is built up and adjusted the index number. And as the final process, the adjusted index number is finished up to a seasonal fluctuation index number with arithmetic average as 100. The second method of allotting differences extant in minuses or in pluses to each month in the range is instanced by some scholars as one of the salient features of the link relative method. But such a difference being the natural outcome of the median used instead of employing the geometric average in the first process, much more stress should be placed on the first process rather than on the second, for the purpose of studying the method.

In the present study, therefore, neither of these methods of moving average, as shown in the first and second processes, nor, of course, the simplest method as very commonly employed, is used, but chiefly I adopt the link relative

method introduced as the third process, to examine the seasonal fluctuations in our state finance. Thus, the present treatise to be explained hereafter, is the consequence of having studied the seasonal fluctuations in our national finance, by limiting the subject of investigation, the object of enquiry, the period of observation, and the methods of adjustment, as has been described above. As explained already in connection with the subject investigation, I shall first comment on the seasonal fluctuations of our state revenue and expenditure, and then I shall deal with the seasonal fluctuations arising from the national receipts from taxes.

2. SEASONAL FLUCTUATIONS OF REVENUE AND EXPENDITURE

I

What we have to pay special attention to in dealing with the seasonal fluctuation of our state revenue and expenditure, is the complex financial system of our country. Our national finance consists of two categories, one expressed as the 'General Finance' and the other entitled the 'Special Finance'; furthermore, the dual finances have a complex relation with each other on account of various forms intermingled in the two. Consequently, the whole of our national revenue and expenditure in our state finance cannot be observed solely through the general finance nor does the figure total of the general finance and many special finances indiate the actual amount, for the intermixture of accounts makes the total in excess of the correct aggregate total.

Ever since Dr. Ogawa declared the necessity of ascertaining by the exact figures the total revenue and expenditure of our state finance, and this was done in the budget of 1921, the same opinion has been followed and declared in a summary form both by Dr. Ota and the Jitsugyo Doshi

Kai (Business men's Political Party), who having worked out the figures at the Accountancy Bureau of the Department of Finance, and also out of the two budgets of 1925 and 1926, have at last been able to publish these figures.

The comparison of figures representing Revenue and Expenditure of general finance against the total figures of Revenue and Expenditure of our State finance as obtained by the above stated efforts stands as follows:—

	Revenue. (1,000's of Yen)		*Expenditure.* (1,000's of Yen)	
	1925	1926	1925	1926
General Finance	1,524,399	1,598,291	1,524,399	1,598,291
Total Amount of State Finances	3,428,667	3,414,908	3,402,550	3,387,983

According to the above figures which are the latest, our general finance showing about 15 hundred million, stands in amount at less than half the total of our revenue and expenditure, that is shown as 34 hundred million. But in the state accountant's book, the figures of which become the only reliable information for us in the study of our national finances, there is no record published other than for those figures in the general finance and nothing is recorded of our special finances' figures. Thus, to my regret, I am prevented from extending my present study to and over the whole sphere of our national finance, and I am perforce obliged to circumscribe it within the boundaries of the general finance.

II

The actual return of revenue and expenditure of this finance as recorded in the State Accounts is published monthly in the Official Gazette. My figures have all been taken from that official publication.

Now then, the actual condition of the present month's finance can be known, when the financial figures of any current month are compared with those of any preceding

month. I shall now explain the process below, by the aid of which our national balance sheet for 1925 will be discussed:

Table I.

Annual Account 1925 Showing Monthly Returns

(in 1,000 of Yen)

Year ending	Revenue	Expenditure	Year	Revenue	Expenditure
1925 May	55,311	104,878	1925 May	55,311	104,878
June	109,965	235,504	June	54,654	130,626
July	184,361	356,242	July	74,396	120,738
August ...	352,412	469,617	August ...	168,051	113,375
September	421,147	605,507	September	63,735	135,890
October ...	1,009,973	694,659	October ...	588,826	89,152
November...	1,131,801	795,491	November...	121,828	100,832
December...	1,235,197	916,199	December...	103,396	120,708
1926 January ...	1,368,926	1,073,244	1926 January ...	133,729	157,045
February ...	1,455,097	1,171,627	February ...	86,171	98,383
March ...	1,569,115	1,285,425	March ...	114,018	113,798
April	1,754,655	1,404,716	April	185,540	119,291

Repeating the same way of accounting as Table I. shows, I had the figures of Table II. for twelve financial years, i. e. 1914–1925.

As the figures of Table II. show, not only are numerical irregularities extant on the face of the annual revenue and expenditure statements, but also such variations are witnessed even in the Tables of the monthly returns. These variations in the latter have a great influence upon the present study of seasonal fluctuations as affecting the formal balance of our annual accounts.

On Table III. I am now recording the range of these amounts received and spent month by month, by the national treasury during a period of 12 years, and also their monthly balances as worked out at the treasury. These numerals were all derived from our state accountant's book, the contents of which might be somewhat short of the actual revenue and expenditure, the reason for which can easily be comprehended when we know that some time elapses

between tax-day and the time of recording the tax receipts at the central government office. Such difference of time or figuring can reasonably be estimated to be about one month. For the present purpose, therefore I have brought each month one month back in this Table III. against the months as recorded in the state accountant's book.

When we examine Table III. we comprehend fairly clearly the state of the monthly movements of our annual revenue and expenditure as well as the relation of the monthly receipts and expenditures. Viewing their monthly totals, we find September showing the largest figure, and April the smallest, and looking at the monthly balances, we notice also that September indicates a maximum of plus figures while April presents a maximum of minus figures.

Knowing thus the ebb and flow of these monthly totals along with that of the monthly balances, we are now able to understand the general trend of the seasonal fluctuations existing in our national finance; yet further investigation is necessary in order to arrive at the exact working out of such peculiarities as are unique in our national finance. This will be commented in the next chapter.

III

By aid of Person's Link Relative method, I have worked out the various types of seasonal fluctuations such as have existed in our national finance in the past 12 years between 1914 and 1925. In doing this, the monthly figures of the annual accounts for the last 12 years have been adopted as a basis and worked out to determine the proportion by which each monthly figure ranks against that of each preceding month, i. e., to find out the link relative of each and every month. So the series of such link relatives thus obtained for the annual revenue and expenditure is now shown in Table IV. as follows:—

We, then, by the aid of these link relatives shown in Table IV, work out the median for each and every month,

Table

Annual Accounts for the last 12

(A) For Revenue

	May	June	July	August	Septem-ber
1914	20,080	24,144	41,412	46,358	26,358
1915	15,541	19,243	28,845	55,100	24,349
1916	18,170	31,962	36,197	57,841	27,176
1917	22,622	34,578	43,162	66,069	43,593
1918	30,830	36,623	58,567	85,936	49,843
1919	31,679	37,355	86,465	97,071	62,156
1920	38,602	43,277	55,869	117,996	57,865
1921	36,124	47,107	61,678	100,911	80,517
1922	47,844	55,912	—	—	635,577
1923	42,803	58,040	33,580	135,923	52,065
1924	46,020	66,873	69,516	138,067	76,961
1925	55,311	54,654	74,396	168,051	68,735

(B) For Expenditure

	May	June	July	August	Septem-ber
1914	74,543	38,955	48,387	71,239	33,975
1915	34,414	36,733	62,514	44,048	46,281
1916	38,676	37,836	53,359	48,726	43,877
1917	47,546	38,212	65,061	49,980	44,913
1918	40,378	52,175	57,973	70,244	66,539
1919	57,035	62,257	88,767	66,696	81,999
1920	71,537	72,356	118,318	91,455	112,543
1921	104,449	109,018	104,012	121,658	95,204
1922	94,288	104,471	—	—	108,357
1923	119,458	74,624	120,886	131,204	113,639
1924	140,408	144,333	114,458	111,051	133,310
1925	104,878	130,626	120,738	113,375	135,890

and then convert the thus acquired medians to a series of index numbers with April as 100. Next, as the third process, we adjust them, to free them from any disturbing factors, and obtain a new series of index numbers entirely freed from discrepancies. Table V. shows the results of these three calculations in order.

Now, taking the figures shown in the 3rd column of Table V. as a basis, I was able to construct the revised index numbers of the seasonal fluctuation as now indicated

II.

Years Showing Monthly Returns

(in 1,000 of Yen)

October	November	December	January	February	March	April
173,990	45,777	36,072	38,899	38,905	62,469	74,920
115,445	45,690	45,101	38,628	34,216	51,662	80,833
155,430	58,255	47,917	47,893	46,472	57,066	86,801
257,798	85,065	56,313	68,553	58,665	67,530	83,181
406,255	105,150	74,409	88,179	93,092	100,494	120,660
520,505	119,862	83,232	159,735	90,661	118,097	171,962
700,743	112,457	87,873	111,615	69,802	119,869	175,833
700,906	118,445	94,592	122,523	80,514	127,004	194,091
64,523	119,130	100,484	127,258	88,866	141,302	146,450
34,224	88,055	78,874	120,784	83,088	148,547	799,410
167,362	121,477	617,499	130,507	79,092	138,741	150,791
588,826	121,828	103,396	133,729	86,171	114,018	185,540

October	November	December	January	February	March	April
25,632	93,803	37,454	37,037	47,014	79,991	34,881
30,008	39,665	56,297	50,307	35,208	43,278	74,032
39,344	41,094	30,193	47,662	39,529	54,929	80,529
41,221	45,847	48,444	98,359	40,279	63,876	102,997
55,811	89,614	65,313	157,369	48,371	103,459	133,394
85,543	108,708	117,055	123,489	62,291	89,884	117,584
116,502	105,744	101,367	172,523	81,871	75,545	114,504
109,079	116,788	144,730	177,414	88,260	78,646	146,102
97,523	100,174	114,410	149,769	73,266	97,851	136,360
72,699	109,930	126,646	135,158	91,887	91,941	199,800
129,781	100,794	120,994	137,183	105,624	106,670	150,391
89,152	100,832	120,708	157,045	98,383	113,798	119,291

in Table VI. The difference between these two sets of statistics lies in this fact, that whilst Table V. contains seasonal fluctuation index numbers with April as 100, Table VI. describes the seasonal fluctuation index numbers with the arithmetical average of 12 months en masse as 100. Hence the definition ' revised ' of this index number.

Thus we are having now in Table VI. those figures for the first time, which are entitled to become good indicators, by aid of which we can properly observe the formal side

Table

Annual Accounts Showing Monthly

(A) Sum-total of Annual Revenue and Expenditure

	April	May	June	July	August
1914	94,623	63,099	89,799	117,597	60,333
1915	49,955	55,981	91,359	99,148	70,630
1916	56,846	69,798	89,556	106,567	71,053
1917	70,168	72,790	108 223	116,049	88,506
1918	71,208	88,798	116,540	156,180	116,382
1919	88,764	99,612	175,232	163,767	144,155
1920	110,139	115,633	174,187	109,451	170,408
1921	140,573	156,125	165,690	222,569	175,721
1922	142,132	160,383	—	—	743,934
1923	162,261	132,664	154,466	267,127	165,704
1924	186,428	211,206	183,974	249,118	210,271
1925	160,189	185,280	195,134	281,426	204,625

(B) Monthly Balance of Revenue and Expenditure Showing Surplus

	April	May	June	July	August
1914	−54,463	−14,811	− 6,975	−24,881	− 7,617
1915	−18,873	−17,485	−33,665	+11,052	− 21,932
1916	−20,506	− 5,874	−17,162	+ 9,115	− 16,701
1917	−24,924	− 3,634	−21,899	+16,089	− 1,320
1918	− 9,548	−15,552	+ 594	+15,692	− 16,696
1919	−25,356	−24,902	− 2,302	+30,375	− 19,843
1920	−32,935	−29,079	−62,449	+26,541	− 54,678
1921	−68,325	−61,911	−42,334	−20,747	− 14,687
1922	−46,444	−48,559	—	—	+527,220
1923	−76,755	−16,584	−87,306	+ 4,719	− 61,574
1924	−94,388	−77,460	−44,942	+27,016	− 56,349
1925	−49,567	−75,972	−46,342	+54,676	− 67,155

of the balance of our annual revenue and expenditure. Accordingly I went a step further, to work out, in addition to these revised index numbers for revenue and expenditure, index numbers of the sum-total of revenue and expenditure, alongside of which I have shown their totals and balances; furthermore there are shown in the same Table VI. the sum-totals of the revised index numbers and their balances as worked out per month.

Here we see on Table VI. such a characteristic of our

III.

Returns for the last 12 Years

(in 1,000 of Yen)

September	October	November	December	January	February	March
199,622	139,580	73,526	75,936	85,919	142,460	109,801
145,453	85,355	101,398	88,935	69,424	94,935	154,865
194,774	99,349	78,110	95,555	86,001	111,995	167,330
299,019	130,912	104,759	166,912	98,944	131,406	186,178
462,066	194,764	139,722	245,548	141,463	203,953	254,054
606,048	228,570	200,287	283,224	152,952	207,981	289,546
817,245	218,201	189,240	284,138	151,673	195,414	290,337
809,985	235,233	239,322	299,937	168,774	205,650	340,193
162,046	219,304	214,894	277,027	162,132	239,153	282,810
106,923	197,985	205,520	255,942	174,975	240,488	999,210
297,143	222,271	738,493	267,690	184,716	245,411	301,182
677,978	222,660	224,104	290,774	184,554	227,816	304,831

\+ or Deficit −

September	October	November	December	January	February	March
+148,358	−48,026	− 1,382	+ 1,862	− 8,109	−17,522	+ 40,039
+ 85,437	+ 6,025	− 11,196	−11,679	− 992	+ 8,389	+ 6,801
+116,086	+17,161	+ 17,724	+ 231	+ 6,943	+ 2,137	+ 62,720
+216,577	+39,218	+ 7,869	−29,806	+18,386	+ 3,654	− 19,816
+350,444	+15,536	+ 9,096	−69,190	+44,721	− 2,965	− 12,734
+434,962	+11,154	− 33,823	+36,246	+28,370	+28,213	+ 54,378
+584,241	+ 6,713	− 13,494	−60,908	−12,069	+44,324	+ 61,329
+591,827	+ 1,657	− 50,138	−54,891	− 7,746	+48,358	+ 47,989
− 33,000	+18,956	− 13,926	−22,511	+15,600	+43,451	+ 10,090
− 38,475	−21,875	− 47,772	−14,374	− 8,799	+56,606	+599,610
+ 37,581	+20,683	+496,505	− 6,676	−26,532	+32,071	+ 400
+499,674	+20,996	− 17,312	−23,316	−12,212	+ 220	+ 66,249

national finance as this—that while our revenue shows a very steady movement which, for instance, is exhibited in the maximum inflow as represented by 130.63 as against 72.25 of the minimum, the difference being only 58.25; our expenditure shows, on the other hand, extraordinary ups and downs, the figures presented being 326.48 as maximum in contrast to 36.8 as minimum, the difference being as much as 289.96.

Now, speaking of each monthly return, the aggregate

Table

Link

(A) Revenue

	April	May	June	July	August
1914	—	120.24	171.52	111.94	56.86
1915	20.74	123.85	149.86	191.02	44.19
1916	22.48	175.90	113.25	159.80	46.98
1917	26.06	152.85	124.83	153.07	65.98
1918	37.06	118.79	159.92	146.73	58.00
1919	26.25	117.92	231.47	112.27	64.03
1920	23.45	112.11	129.10	211.20	49.04
1921	20.54	130.40	130.93	163.61	79.79
1922	24.65	116.86	—	—	—
1923	29.23	135.60	57.86	404.77	78.30
1924	5.76	145.31	103.95	198.61	55.74
1925	36.68	98.81	136.12	225.89	40.90

(B) Expenditure

	April	May	June	July	August
1914	—	52.26	124.21	147.23	47.69
1915	98.66	106.74	170.18	70.46	105.07
1916	52.24	97.83	141.03	91.32	90.05
1917	59.04	80.37	170.26	76.82	89.86
1918	39.20	129.22	111.11	121.17	94.72
1919	42.76	109.16	142.58	75.14	122.94
1920	60.83	101.14	163.52	77.30	123.06
1921	91.22	104.37	95.41	116.97	78.26
1922	64.54	110.80	—	—	—
1923	87.61	62.47	161.99	108.54	86.61
1924	70.27	102.80	79.30	97.02	120.04
1925	69.73	124.55	92.43	93.90	119.86

amount for month, ranks as follows in order of the size of the monthly return:

September—March—May—April.

Concerning the difference between the monthly revenue and the expenditure, September, March, February show a plus balance, and these months are respectively followed by months ending in a minus balance, among which May,

IV.

Relatives

(in percentages)

September	October	November	December	January	February	March
660.10	26.31	78.80	107.84	100.02	160.57	119.93
474.13	39.58	98.71	85.65	88.58	150.99	156.47
571.94	37.48	82.25	99.95	97.03	122.80	152.11
591.37	33.00	66.20	121.74	85.58	115.11	123.18
815.07	25.88	70.76	118.51	105.57	107.95	120.07
837.42	23.03	69.44	191.92	56.76	130.26	145.61
1,211.00	16.05	78.14	127.02	62.54	171.73	146.69
870.51	16.90	79.86	129.53	65.71	157.74	152.82
10.15	184.63	84.35	126.65	69.83	159.01	103.64
65.73	257.29	89.57	153.14	68.79	178.78	538.15
217.46	72.58	508.33	21.13	60.60	175.42	108.69
856.66	20.69	84.87	129.34	64.44	132.32	162.73

September	October	November	December	January	February	March
75.44	365.96	39.93	98.89	126.94	170.14	43.61
64.84	132.18	141.93	89.36	69.99	122.91	171.08
89.67	104.45	73.47	157.86	82.94	138.96	146.61
91.78	111.22	105.66	203.04	40.95	158.58	161.25
83.88	160.57	72.88	240.95	30.74	213.89	128.93
104.32	127.08	107.68	105.50	50.44	144.30	130.82
103.52	90.77	95.86	170.20	47.45	92.27	151.57
114.57	107.07	123.93	122.58	49.75	89.11	185.77
90.00	102.72	114.21	130.91	48.92	133.56	139.35
63.97	151.21	115.21	106.72	67.98	100.06	217.31
97.35	77.66	120.04	113.38	76.99	100.99	140.99
65.61	113.10	119.71	130.10	62.65	115.67	104.83

April, and June show the maximum balance in minuses.

In observing the sum-total column, we see that every financial year starts with a minus balance and goes on with the minus balance until September, when, for the first time, the year enters plus months, and continues to be with plus till the end of December, when it re-enters a minus season.

Table V.

Index Number Showing the Seasonal Fluctuation of Annual Revenue and Expenditure

(in Percentages)

	Median of Link Relatives		Chain Series of S. F. Index Numbers		Chain Series Adjusted for Descrepancies	
	Revenue	Expenditure	Revenue	Expenditure	Revenue	Expenditure
April	24.65	64.54	100.00	100.00	100.00	100.00
May	122.04	103.58	122.01	103.58	121.56	101.78
June	130.93	141.03	159.79	146.08	158.52	141.04
July	163.61	93.90	261.43	137.17	258.33	130.13
August...	55,74	94.72	145.72	129.63	143.42	121.11
September	625.73	89.83	911.82	116.71	893.87	106.90
October	29.65	112.16	270.35	130.90	263.98	117.81
November	81.05	110.94	219.12	145.23	213.11	128.43
December	124.19	126.34	272.12	183.48	263.61	159.43
January	69.31	56.54	188.61	103.74	181.98	88.57
February	154.36	128.23	291.14	133.02	279.79	111.60
March	146.15	143.80	425.50	191.29	407.29	157.69
April			104.88	123.46	100.00	100.00

3. SEASONAL FLUCTUATION IN RECEIPTS FROM TAXES

I

Seasonal fluctuations in our national finance have been worked out so far in bulk. It is necessary, however, for a complete solution of our subject, to make further enquiries regarding tax revenue at its seasonal fluctuation. Tax revenue ranks in every civilized country of modern times as the backbone of national revenue. So in our country the chief source of annual revenue in the ordinary budget is the receipts from taxes. It is however, not easy to classify the receipts from taxes in detail. But to give a rough classification, we have as the direct tax group, income tax, war profit tax, land tax, business tax, mining tax,

Table VI.

Revised Index Numbers of Seasonal Fluctuation

(in Percentages)

	Revised Index Numbers		Aggregate of Revised Index Numbers	Balance of Revised Index Numbers		Sum-total of Revised Index Numbers		Balance of Sum-total of Revised Index Numbers
	Revenue (+)	Expenditure (−)				Revenue (+)	Expenditure (−)	
April	36.52	81.94	118.46	− 45.42	April	36.52	81.94	− 45.42
May	44.40	83.40	127.80	− 39.00	May	80.92	165.34	− 84.42
June	57.90	115.57	173.47	− 57.67	June	138.82	280.91	−142.09
July	94.35	106.63	200.99	− 12.28	July	233.17	387.54	−154.37
August	52.38	99.24	151.62	− 46.86	August	285.55	486.78	−201.23
September	326.48	87.60	414.08	+238.88	September	612.03	574.38	+ 37.65
October	96.42	96.54	192.96	− 0.12	October	708.45	670.92	+ 37.53
November	77.84	105.23	183.07	− 27.39	November	786.29	776.15	+ 10.14
December	96.28	130.63	226.91	− 34.35	December	882.57	906.78	− 24.21
January	66.47	72.58	139.05	− 6.11	January	949.04	979.36	− 30.32
February	102.19	91.44	193.63	+ 10.75	February	1,051.23	1,070.80	− 19.57
March	148.77	129.20	277.97	+ 19.57	March	1,200.00	1,200.00	—

succession tax, tax on bourses, tax on issues of Bank-notes, tonnage dues, shooting licenses, registration tax, royalty and stamp duties; as our indirect tax group, we have the tax on soy, the consumption tax on kerosene oil, tax on *sake*, tax on alcohol and alcoholic liquors, beer tax, profits of monopolies, sugar excise, consumption tax on textile fabrics, stamps for patent medicines, travelling tax.

In my present study I am prevented from utilizing all the taxes enumerated above as a basis of calculation, because of technical and other difficulties, and I have, therefore, used only some of those taxes which are published in our national budget. I have eliminated such minute taxes as these, the succession tax, travelling tax, mining

Table

Tax-months and

		(1923) Apail	May
Land Tax...	Rice Paddy Tax	—	11,234
	Hokkaido Rice Paddy Tax	—	26
	Farm Tax	—	—
	Hokkaido Farm Tax	—	180
	Tax on Residential Land	—	—
	Hokkaido Residential Land Tax	—	—
	Miscellaneous Land Tax	—	—
	Total	—	60
Income tax (class 3)		—	11,503
Business Tax		—	—
Mining Tax	Tax on Mine products	—	—
	District Tax on Mining	—	—
	District Tax on Experimental Mining	—	—
	District Tax on Alluvial Mines	—	—
	Total	—	—
Tax on issue of Bank Notes		—	—
Tax on Sake (Tax on Sake brewing)		—	—
Tax on Soy	Tax on Soy	—	—
	Tax on Soy for home Consumption	—	—
	Total	—	—
Tax on Bourses		746	746
Sum total		746	12,249

tax, tax on issue of bank notes, tax on soy, consumption tax on kerosene oil, stamps for patent medicines, taxes on bourses, and tonnage dues; and deal merely with these: the land tax, income tax, business tax, tax on *sake*, sugar excise, consumption tax on textile fabrics and custom duties.

We have in our national finances two accounts, one being the Budget account, and the other, the Balance account. The former is the estimated account for the future; the latter, the account resulting from the past. We can similarly observe the seasonal fluctuation of taxes in two directions, that is to say, one for estimate, and the other for the actual returns. I shall deal first with the seasonal fluctuation of tax revenue for estimate.

VII.

Monthly Receipts

(1,000 of Yen)

June	July	August	September	October	November	December	(1924) January	February	March	Total
—	—	—	—	—	—	—	11,234	11,234	11,234	44,939
—	—	—	—	—	26	—	—	—	—	53
—	—	—	4,884	—	4,884	—	—	—	—	9,769
—	—	—	—	—	180	—	—	—	—	361
—	8,343	—	—	—	—	—	8,343	—	—	16,686
—	—	185	—	—	—	—	—	185	—	370
—	—	—	850	—	850	—	—	—	—	1,701
—	—	—	—	—	60	—	—	—	—	121
—	8,343	185	5,735	—	6,004	—	19,577	11,420	11,234	74,004
—	—	—	25,470	—	25,470	—	25,470	—	25,470	101,880
28,641	—	—	—	—	28,641	—	—	—	—	57,282
—	—	—	—	—	—	—	—	—	3,081	3,081
—	—	—	—	—	—	880	—	—	—	880
—	—	—	—	—	—	1,285	—	—	—	1,285
—	—	—	—	—	—	8	—	—	—	8
—	—	—	—	—	—	2,174	—	—	3,081	5,255
—	—	1,178	—	—	—	—	—	1,178	—	2,357
—	44,839	—	—	44,839	—	—	—	44,839	44,839	179,356
—	2,013	—	—	—	2,013	—	—	—	2,013	6,039
—	—	—	—	390	—	—	—	—	390	781
—	2,013	—	—	390	2,013	—	—	—	2,404	6,821
746	746	746	746	746	746	746	746	746	746	8,960
29,387	55,942	2,110	31,952	45,976	62,875	2,921	45,794	58,184	87,776	435,919

II

The making of estimates of the seasonal fluctuations of tax receipts is carried on as a routine work of government business so as to meet the requirements of the budget and

Table

Link

	April	May	June	July	August
1914	—	6,940.55	1.44	8,740.00	3.13
1915	0.59	4,676.30	82.20	331.31	3.01
1916	0.75	3,739.15	89.62	308.24	3.12
1917	0.97	2,886.66	98.65	273.75	3.30
1918	1.49	1,925.48	114.25	239.13	3.77
1919	1.51	1,720.17	144.16	206.00	3.65
1920	1.43	1,516.91	182.70	183.26	4.12
1921	1.73	1,214.20	201.88	198.95	4.00
1922	1.09	1,376.29	275.28	158.88	2.09
1923	0.81	1,654.74	183.50	236.89	2.83
1924	0.89	1,641.96	239.91	190.36	3.77

These figures being published in the said reference book of financial information, are available for use as material by the aid of which one can find out clearly the state of the national finances of a given year in relation to the national economy, especially the important relation between tax revenue and national economy. For instance, such questions as are connected with the issue of treasury bills are to some extent controlled by the numerals indicated on Table VII. In measuring the seasonal fluctuation of the tax revenue, based upon this table of tax months and tax accounts for the financial year between 1914 and 1915, I am working out the case in the following manner:

First of all, I have worked out the link relatives for 11 years (132 months), and have converted them into percentages, the result of which are now to be shown as Table VIII. These figures start from April, as I have adopted the

for the sake of national economy. The "Kinyu Jiko Sanko Sho," (Bulletin of Financial Information) contains valuable statistics and tabulations in full of all tax returns classified by the month, and renders essentially good service as reliable material for students of the seasonal fluctuation in tax revenues. For example, the following is extracted from it.

VIII.

Relatives

(in Percentages)

September	October	November	December	January	February	March
1,180.86	193.90	115.63	6.37	1,516.69	136.21	121.74
1,211.61	195.04	98 97	7.65	1,477.43	135.52	122.72
1,122.01	204.10	99.50	8.50	1,283.65	138.48	122.04
1,109.49	193.72	107.86	8.93	1,167.38	134.48	123.52
1.248.38	152.05	128.51	9.37	1,030.30	120.00	134.33
1,598.49	127.04	147.60	8.74	1,009.87	109.91	147.47
385.68	653.35	95.66	10.70	718.75	138.41	137.10
1,556.24	129.93	141.25	8.23	955.15	116.34	157.42
3,183.77	123.72	159.35	6.35	1,106.47	111.53	164.39
471.16	149.07	120.55	6.12	1,312.40	141.59	136 56
1,514.31	143.89	136.76	4.65	1,567.75	127.06	150.86

Table IX.

Index Numbers Showing Seasonal Fluctuations of Tax Estimates

(in Percentages)

	Medians of Link Relatives	Chain Series of Index Numbers of Seasonal Fluctuations	Chain Series of Index Numbers of S. F. Adjusted for Discrepancies
April	0.97	100.00	100.00
May	1,720.17	1,720.17	1,749.76
June	144.16	2,479.80	2,565.82
July	236.89	5,874,39	6,182.68
August	3.65	214.42	229.56
September	1,211.61	2,597.88	2,829.09
October	152.05	3,950.07	4,375.49
November	120.55	4,761.81	5,365.61
December	8.23	391,90	449.20
January	1,167.38	4,574.93	5,333.91
February	134.48	6,152 36	7,296.08
March	136.56	8,401.67	10,134.93
April		81.50	100.00

financial year as a period for the present illustration.

Secondly, using these link relatives as shown in Table VIII. as material, I worked to get the medians per month, and convert them again to indices in a chain series with April as 100. And thirdly, these indices are adjusted for discrepancies. Table IX. shows the results of all foregoing processes of reckoning.

The figures as shown in Table IX. are worked out, making their starting point with April as 100. An arrangement of this kind naturally makes it less easy to understand the seasonal fluctuation of one year at sight. Thus, we finally go on to work out as the 4th process, the revised index numbers which have an arithmetical average as 100. The outcome is shown in Table X.

Table X.

Revised Index Numbers of Seasonal Fluctuation

(in Percentages)

April	25.74	October	1,126.46
May	450.46	November	1,381.35
June	660.56	December	115.65
July	1,591.71	January	1,373.20
August	59.10	February	1,878.25
September	728.34	March	2,609.20

These numerals, thus arrived at in Table X. are the very figures which indicate the seasonal fluctuations of our tax revenue estimates during the past 11 years, The wide difference, existing in these numerals between maximum and minimum, together with the irregularities which may be seen distributed in the range of these monthly figures, well indicate the remarkable magnitude of the seasonal fluctuation of our tax revenue estimates.

The seasonal fluctuation of tax revenue estimates has thus been explained, and concluded. But we must remember again that in the Table of tax months and accounts which was made the basis of the present study, are recorded only

those tax revenues the pay months of which are fixed. Thus, to quote the budget of 1925, we see that the total of the estimated revenue from taxes amounts to the sum of Yen 795,000,000 as against the estimated tax revenue of Yen 435,000,000 only, recorded in the Table of tax months and its estimates, i. e., only 55 per cent being recorded in the Table. Thus we see at once that an argument which excludes 45 per cent of the actual receipts never can tell the true state of the seasonal fluctuation of the tax revenue. Furthermore, we have it in our mind that Estimate (*Soll-rechnung*) falls, in all cases, short in value, of the actual result (*Ist-rechnung*) as statistics. For these reasons we must necessarily proceed to work out the seasonal fluctuation of the actual tax revenue.

III

In the pursuit of the last mentioned subject, the only available figures are those which are published in the Official Gazette as annual accounts of the actual tax returns. To work out these figures for the present purpose, a similar process to that which I employed in the case of the tax estimate can be applied, with the two exceptions I give under:

First, we must remember that the figures now at our service were taken from the record in the book of the Chief Accountant of the Central Government Office, so that in view of some time generally elapsing between the date of the tax-day and the recording of the receipts in the book of the Chief Accountant of the Central Government Office, and also of arrears, it is usually the case that some actual receipts from taxes remain unrecorded in the said book during part of each respective tax month, but such arrears or unrecorded portions are put on record at the beginning of the succeeding month. Thus we must know that there are again two sides to the meaning of tax receipts, one meaning estimate of taxes paid, the other, actual receipts

as recorded in the Chief Accountant's book, the difference in time between which may reasonably be calculated in this country to be almost one month.

Secondly, some adjustment must be made in using these figures as a basis of the present calculation because the monthly figure as recorded in the book includes the previously unrecorded balance of the preceding month now brought forward. Thus, to secure the correct figures for the current month itself, the figures proper to the month must be obtained by deducting the aforesaid unrecorded balance of the preceding month out of the total of the current month. Another adjustment is needed in consideration of the fact that the Chief Accountant's book is not closed on the 31st of March because of the necessity of recording arrears paid later, but is still open for several months later; thus, so far as actual accounts are concerned, we see there two accounts running for sometime in any new financial year.

Having these two points just mentioned above in consideration, I have made adjustments to this effect, that first, instead of computing the annual return from April as I did before, I have revised it to count from May; secondly, as to the figures of May only, the figures of last year were added, and the total was made as the actual return of the current month of May. Taking the actual receipts from taxes between May 1924 and April 1925, I have shown in Table XI. how this was worked out.

Table XI. is the result of having investigated all tax receipts as returned during 142 months beginning from May 1914 and ending in February 1926, except the figures for July 1922, missing on account of their having been lost or destroyed during the great earthquake, therefore it was impossible to quote the figures for July and August of that year.

As to the method of working out, I have there used the Link Relative method. Besides, I have treated land tax, income tax, business tax, tax on *sake*, sugar excise, con-

Table XI.

Actual Receipts from Taxes

	Balance			Revenue		
	1923	1924		1923	1924	Total
1924 April	709,028		1924 May	58,075	17,582	75,657
May	767,103	17,582	June		41,803	41,803
June		59,385	July		48,503	48,513
July		107,898	August		113,082	113,082
August		220,980	September... ...		38,633	38,633
September... ...		259,613	October		45,002	45,002
October		304,615	November		87,374	87,374
November		391,989	December		66,058	66,058
December		458,047	1925 January		94,154	94,154
1925 January		552,201	February		50,080	50,080
February		602,281	March...		116,356	116,356
March...		718,637	April		111,657	111,657
April		830,294				

Table

Index Numbers of the Seasonal

(A) Medians of Link Relatives

	Aggregate of Tax Revenue	Land Tax	Income Tax
(Current year)			
April	72.39	72.72	237.40
May	39.89	20.48	11.32
June	174.64	484,54	181.77
July	194.62	14.99	111.62
August	39.21	470.69	80.07
September	93.83	13.75	260.62
October	220.69	522.23	279.65
November	81.94	14.58	40.21
December	127.13	700.98	221.14
(Following year)			
January	65.08	253.09	61.77
February	191.77	63.22	158.64
March	103.96	150.75	80.36

(B) Chain Series of Seasonal Fluctuation Index Numbers

	Aggregate of Tax Revenue	Land Tax	Income Tax
(Current year)			
April	100.00	100.00	100.00
May	39.89	20.48	11.32
June	69.66	99.23	20.58
July	135.58	14.88	22.97
August	53.16	70.02	18.39
September	49.88	9.63	47.93
October	110.08	50.28	134.03
November	90.20	7.33	53.89
December	114.67	51.38	119.18
(Following year)			
January	74.63	130 04	73.62
February	143.12	82 22	116.79
March	148.78	123.94	93.85
April	107.70	90.13	222.80

(C) Index Numbers of Seasonal Fluctuation

	Aggregate of Tax Revenue	Land Tax	Income Tax
(Current year)			
April	100.00	100.00	100.00
May	39.64	20.66	10.11
June	68.81	100.97	18.01
July	133.09	15.27	18.80
August	51.86	72.48	14.08
September	48.36	10.05	34.33
October	106.07	52.96	89.79
November	86.38	7.79	33.77
December	109.14	55.07	69.87
(Following year)			
January	70.59	140.59	40.37
February	134.53	89.65	59,51
March	139.00	136.33	45.03
April	100.00	100.00	100.00

XII.

Fluctuation of Tax Revenue

(in Perentages)

Business Tax	Tax on *Sake*	Sugar Excise	Consumption Tax on Textile Eabrics	Custom Duties
68.00	4.47	101.87	84.41	89.56
67.42	61.90	106.52	103.55	104.41
12,866.67	113.89	125.14	108.26	93.26
435.00	4,262.89	78.91	99.09	102.10
1.22	2.78	110.55	91.22	113.99
35.81	169.35	107.17	104.51	98.36
75.55	1,385.06	103.28	95.91	105.02
4,926.83	78.33	101.65	110.97	99.49
486.72	2.30	105.82	102.62	105.45
1.32	123.45	105.82	98.04	85.58
39.02	6,100.50	90.29	98.66	106.82
100.63	101.97	97.25	112.75	105.72

Business Tax	Tax on *Sake*	Sugar Excise	Consumption Tax on Textile Fabrics	Custom Duties
100.00	100.00	100.00	100.00	100.00
67.42	61.90	106.52	103.55	104.41
8,674.70	70.59	133.30	112.10	97.37
37,735.00	3,005.25	105.19	111.08	99.42
460.37	83.55	116.28	101.33	113.33
164.85	141.48	124.62	105.90	111.47
124.55	1,959.65	128.71	101.57	117.07
6,136.40	1,535.00	130.83	112.71	116.47
29,867.00	35.31	138.45	115.66	122.81
394.24	43.58	146.50	113.40	105.10
153.83	2,658.90	132.28	111.88	112.27
154.80	2,711.20	128.64	126.14	118.69
105.27	121.19	131.05	106.48	106.30

Business Tax	Tax on *Sake*	Sugar Excise	Consumption Tax on Textile Fabrics	Custom Duties
100.00	100.00	100.00	100.00	100.00
67.13	60.92	104.15	103.01	103.88
8,600.90	68.28	127.43	110.94	96.39
37,254.00	2,864.30	98.31	109.35	97.91
452.56	78.36	106.26	99.23	111.04
161.37	130.60	111.34	103.16	108.66
121.39	1,780.10	112.43	98.43	113.54
5,955.40	1,372.20	111.74	108.66	112.39
28,862.30	31.06	115.61	110.92	117.91
379.36	37.73	119.61	108.19	100.40
147.39	2,265.30	105.59	106.18	106.70
147.69	2,273.20	100.50	119.09	112.23
100.00	100.00	100.00	100.00	100.00

sumption tax on textile fabrics, and custom duties separately by the said method. Hence in Table XII. first, I show the medians of the link relatives, as worked out; secondly, I have converted these link relatives to index numbers in a chain with April as 100 to represent the seasonal fluctuations: thirdly, I have proceeded to work out the revised index numbers of the seasonal fluctuation adjusted for discrepancy. I shall now show by Table XII. these index numbers in the order in which they were worked out and here it must be noted that again each month has been brought backward by one month according to the reasons previously stated.

After the three processes as completed in Table XII. we are now arriving at Table XIII. in which, I am able to show the revised index numbers of seasonal fluctuations worked out with a 12-month arithmetical average as 100.

Table XIII.

Revised Index Numbers of Seasonal Fluctuation

(in Percentages)

	Aggregate of Tax Revenue	Land Tax	Income Tax	Business Tax	Tax on *Sake*	Sugar Excise	Consumption Tax on Textile Fabrics	Custom Duties
(Current year)								
April	110	150	225	1	11	91	94	93
May	44	31	24	1	7	95	97	97
June	76	151	40	125	7	116	104	90
July	147	23	42	544	311	90	103	92
August	57	108	32	7	9	97	93	104
September	53	15	77	2	14	102	97	102
October	117	79	202	2	193	103	92	106
November	95	12	76	87	149	102	102	105
December	120	82	157	421	3	106	104	110
(Following year)								
January	78	210	91	6	4	109	102	94
February	145	134	135	2	246	97	100	100
March...	153	204	101	2	247	92	112	105

Now to observe the conditions of receipts from land tax, income tax, tax on *sake*, sugar excise, consumption tax

on textile fabrics, and custom duties, we find with some of them that their pay-days are evenly distributed throughout the financial year, for instance, those of the sugar excise, consumption tax on textile fabrics, and customs duties; but with others, such as the business tax and the tax on *sake*, tax days are restricted to certain months only of the year; and again among the former taxes, the chief taxes, like the land tax and the income tax, have their pay-days fixed between those of the said two groups; moreover, we see that a remarkable difference exists in the inflow of such receipts between the first half and the second half of the financial year.

Viewing the tax revenue as a whole throughout the financial year, the ranking of tax receipts in orde of volume can be made as follows:

March—July—February—December—October—April —November—January—June—August—September—May.

It may thus be seen that the centre of gravity as represented by the maximum inflow of tax receipts is towards the last half year. But the most noticeable fact as shown in the present case is that the big ups and downs of seasonal fluctuation, as observed with the tax estimates, no longer exist when it comes to actual tax receipts, and what variations there are according to season are shown to be comparatively small.

4. CONCLUISON

I have now completely worked out the figures which most properly indicate the actual state of the seasonal fluctuation existing in our national finance, by aid of the link relative method. To summarise, first of all, the seasonal fluctuation of annual revenue and expenditure has been studied, basing the calculations upon the actual returns; secondly, in the study of seasonal fluctuation in tax revenue, the object was observed from two directions, estimates and actual receipts, and as regards the actual returns, I have

investigated them in two ways, first as a whole, and secondly, one by one, taking them in order of importance, thus: land tax, income tax, business tax, tax on *sake*, sugar excise, consumption tax on textile fabrics and custom duties. Having investigated the subject by aid of these necessary processes, I am now able to conclude as follows:

(1) Our national expenditure is fairly evenly allocated over the 12 months of the financial year, but our national revenue is very unevenly allocated in the months of the financial year, as seen in the scantiness of the revenue at the beginning of each financial year, which is most remarkably shown in the receipts of the income tax and the tax on *sake*.

(2) The result is that in order to meet expenditure as steadily required and as evenly allocated to every month of the financial year, with that comparatively small revenue at the beginning of every fiinancial year, our national treasury naturally becomes short of means to pay off expenditure.

These two facts bring out a serious problem. In the first place, the chief part of our national expenditure is occupied, and controlled, therefore, by salary accounts and the like, monthly payments of which are inevitable, whilst the essential part of our national revenue by which to meet such steady and unavoidable expenditure, consists of such taxes and revenue, the seasonal fluctuations of which are very variable as we have seen in the foregoing tables, and as stated as the first part of the above conclusion. The second fact, that government becomes short of means at the beginning of each financial year, is a natural consequence arising from the first fact, and thus we see our successive governments have developed a traditional system of finacce which is to issue treasury bills and to raise government bonds whenever necessity dictates.

So long as such a particular form like 'Expenditure running on steadily, but revenue coming in scantily at the beginning' is adopted in state finance, it must be said that an appearance of certain defects in the system of national

finacce is the most natural and unavoidable outcome. In order to counteract such formal defects and balance the annual accounts, our parliament, according to the Accountancy Law regulations, fixes at the beginning of every financial year, the maximum amount permissible of treasury bills and of government bonds to be issued in the new financial year.

This particular form of finance, the issuing of treasury bills and government bonds every financial year at its outset can be described as the salient feature of our national finance. This typical financial policy was, however, suspended during and some time after the great European war, because our government, being in unusual possession of enormous but abnormal surpluses from each preceding year, has been able to manage somehow to meet all requirements at the beginning of each financial year. Below I give figures which denote the successive balances of these years following 1914, as showing the relation between surplus acccounts each year brought forward and the totals of annual revenue.

(in 1,000 of Yen)

	Surplus Brought Forward from Preceding Year	Grand Total of Annual Revenue
1914...	148,341	734,648
1915...	86,227	708,615
1916...	125,346	813,308
1917...	222,513	1,084,958
1918...	349,901	1,479,115
1919...	462,080	1,808,633
1920...	636,304	2,000,652
1921...	640,674	2,065,711
1922...	575,855	2,087,345
1923...	657,655	2,045,298
1924...	524,247	2,127,391
1925...	502,350	1,754,655
1926...	125,111	1,598,291

From the table above, it will clearly be understood how such a special surplus as is brought forward each year from the preceding year has been playing an important role in

our national finance, and how the shortage of revenue that is experienced at the start of every financial year, has been helped by this surplus account.

But the fact remains all the time. Our national revenue is always falling short of the expenditure at the start of every financial year, and our national expenditure is brought even on the whole year. So there is the particular system of making both ends meet by the aid of treasury bills and of government bonds. This is the salient feature of our national finance, yet for the time being this special feature seems dephased by the unnatural holding of a surplus. But such holding speedily diminishes year by year, and again we perceive on the horizen that the traditional form of our national finance is reappearing. Here lies the reason why I started the present enquiry into the seasonal fluctuations of our national finance.

As aforesaid, the national finance of this country has one year as its unit of accounting, and during those last 10 years it has made great strides. In most of these years, our national finance has been intensively affected by the great war, as to its secular trend, cyclical fluctuation, residual variation, and all other economic changes. It should, however, be said that it is a most remarkable fact that despite all these economic changes, the national finance of this country has all the time preserved its distinctive feature of seasons:—fluctuation of tax revenue, as its financial year is always counted by the unit of one year. Of course it can be said that such seasonal fluctuation of our national finance is dependent upon the tax-months and other legal forms, but at the same time, we cannot deny that such typical fluctuation is also an outcome depending upon the particular conditions such as belong to our export and import trade, balances caused thereby and the conditions of the home demand of commodities, all peculiar to our own country. It is indeed those characteristics which are reflected upon our national finance as its typical feature of seasonal fluctuation.

The finance of today is nothing but a continuation of that of yesterday. Whatever unit one may adopt as a unit for the financial year, he cannot separate the finance of the 1st of April from that of the 31st of March. So always there exists a seasonal fluctuation in national finance, notwithstanding whatever artificial alteration may be applied to its time-unit or whatever endless economic changes may take place in the state finance.

The financial condition of this country is now undergoing momentous changes; hence its seasonal fluctuation is liable to changes. Thus, the reforms made in 1926 in our taxation system will necessarily affect the seasonal fluctuation of tax revenue, consequently that of our national finance en masse.

The present scribe will be pleased if what he has done so far prove to be of any use to those who may engage in the further study of the seasonal fluctuations in our national finance in the new days of our taxation.

SABURO SHIOMI